

DANTYINAE, A NEW SUBFAMILY OF OSTRACODA
(MYODOCOPINA: SARSIELLIDAE)

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Abstract.—Dantyninae, a new subfamily of the Sarsiellidae (Ostracoda, Suborder Myodocopina) is proposed for *Dantya magnifica*, a new genus and species of marine ostracode from Carrie Bow Cay, Belize, and 2 previously described species (1 in open nomenclature). The new genus and species is described and illustrated. The phylogenetic relationships of the new subfamily are discussed.

The Smithsonian Institution is at present sponsoring a study, under the leadership of Dr. Klaus Ruetzler, of the coral barrier reef off Carrie Bow Cay, Belize. We are participating in this project by studying the myodocopid Ostracoda collected in the vicinity of the reef. Among ostracodes collected during May 1976 by the junior author were 2 females having a morphology sufficiently different to warrant proposal of a new subfamily, the Dantyninae, in the family Sarsiellidae. We also refer to the Dantyninae, a species collected near Ceylon and identified as *Sarsiella*(?) *ornithoides* (n. sp.) by Brady (1902:189), and a species collected probably in the Indonesian region and identified as *Sarsiella* sp. by Müller (1906:30).

Methods.—The aluminum stub used in mounting specimens for placement in the SEM was modified as follows: A narrow slit was cut across the flat top surface of the stub with a diamond saw, and a round glass cover-slip was cut in two with a diamond point. Half of the cover slip was glued into the slit in the stub, and the specimen, in a position perpendicular to the flat upper surface of the stub, was glued to the edge of the cover-slip (pl. 7e). In the usual method, in which the specimen is mounted close to the stub, the stub often creates background clutter and glare. This is avoided by the method used herein. When using SEM equipment capable of a 10° tilt in the direction opposite the usual 70-90° tilt, the new method has an additional advantage in permitting pictures perpendicular to both sides of the specimen, even when the specimen is mounted as much as 10° from the perpendicular. In the usual method of mounting the specimen close to the stub, the stub blocks off part of one side of the specimen if it is not mounted perpendicular. In yet another previous method that has been used by the authors and others, the specimen is glued to a slender wire mounted perpendicular to the cover slip. The new method is somewhat easier to use, once the stub has been modified, but use of the wire has an advantage in being flexible, permitting it to be bent in order to position the mounted specimen perpendicular to the face of the stub.

SARSIELLIDAE Brady and Norman, 1896

The Sarsiellidae is comprised of 2 subfamilies, Sarsiellinae Brady and Norman, 1896, and Dantynaenae, new subfamily herein.

Key to Subfamilies of the Sarsiellidae (females and juveniles only)

- | | |
|-------------------------------------------------------------------------------------------------------|----------------------------|
| With prominent rostrum; mandible with 2 stout claws on each of the 3 endopodial joints | Dantynaenae, new subfamily |
| Without rostrum or with minute rostrum; mandible with 1 stout claw on each of the 3 endopodial joints | Sarsiellinae |

DANTYINAE, new subfamily

Diagnosis.—Carapace of female with prominent rostrum.

Mandible: Endopodite: 1st and 2nd joints with 2 stout ventral claws; end joint with 2 stout terminal claws and 1 small dorsal claw.

Rod-shaped organ: Elongate, segmented.

Furca: Each lamella with 1st claw united to lamella and remaining claws separated from lamella by suture.

In the description of his new species *Sarsiella*(?) *ornithoides* Brady, 1902, of which he had only 1 specimen, Brady stated (p. 189), "The characters of the caudal laminae seem to associate this species with *Sarsiella*, the shell also bearing some distant resemblance to that genus, but its position here must be regarded as purely provisional." The holotype is apparently lost, as is a specimen of *Sarsiella ornithoides* listed, but not described, by Scott (1905:367) from Karativo Paar, Ceylon. The description of the species by Brady is incomplete.

Müller (1906:30-32, Pl. 4: Figs. 10-18) identified a juvenile male as *Sarsiella* sp. He recognized that the specimen differed considerably from juvenile males of previously described species of *Sarsiella* and discussed the differences (Müller, 1906:32). Müller (1906) did not give locality data for the specimen, but it is probably from the Indonesian region, where the other ostracodes described in his paper were collected. Many ostracodes collected during the Siboga Expedition are at the Zoological Museum of the University of Amsterdam, but according to Sjouk Pinkster (in litt., 1978) the specimen identified by Müller as *Sarsiella* sp. is not there. The inclusion of Brady's and Müller's species in the Dantynaenae will be discussed in a subsequent paper in which a new genus will be proposed for both species.

Dantya, new genus

Dantya [Kornicker and Cohen] in Anonymous, 1977:66, unnumbered figure [nomen nudem; unauthorized publication of news items containing copy of our illustration (Fig. 1, herein) and our generic name].



Fig. 1. *Dantya magnifica*, holotype, juv. ♀, USNM 157129, complete carapace, length 1.05 mm.

Etymology.—The genus is named in honor of Bernard and Michael Danty; the latter assisted in the collections of Ostracoda at Carrie Boy Cay, Belize. Gender feminine.

Type-species.—*Dantya magnifica*, new species herein.

The following diagnosis of the genus is based on juvenile females, probably the A-1 stage. Only those characters have been used in the diagnosis that probably hold for the adult female. Differences should be expected for the adult male.

Diagnosis.—Carapace with prominent rostrum and caudal process; rostral infold with spinous bristles forming row; caudal process with broad spinous bristles forming row.

First antenna: 2nd joint with 1 dorsal bristle; 3rd joint short, fused to 4th.

Second antenna: Prodopodite without medial bristle. On type-species many exopodial joints with basal spines, and slender spines forming row near distal margin.

Mandible: Coxale endite large for family. Exopodite minute with

single terminal bristle. Endopodite: ventral margins of 1st and 2nd joints with 2 stout claws; end joint with 2 long claws and 1 short dorsal claw.

Maxilla: Similar in morphology to that of members of the Sarsiellidae and Rutidermatidae.

Fifth limb: 3 endites present. Exopodite: 1st joint with several stout teeth; 2nd joint with large broadly triangular tooth.

Sixth limb: 4 endites present; end joint with anterior bristles either bare or with short marginal spines, and posterior bristles with long marginal hairs. Limb of type-species with 1 bristle on posterior margin considered to be epipodial bristle.

Seventh limb: Limb of type-species with 8 bristles, and terminus with comb opposite small peg.

Furca: Claw 1 united to lamella, remaining claws separated from lamella by suture. Each lamella of type-species with total of 5 or 6 claws, and with claw 4 stouter than claw 3.

Eyes: Type-species with small lateral eyes and slightly larger medial eye.

Rod-shaped organ: Elongate with proximal sutures.

Upper lip: Consisting of lobe with slender spines.

Dantya magnifica, new species

Figs. 1-5, Pls. 1-7

Dantya [Kornicker and Cohen] in Anonymous, 1977:66, unnumbered figure [unauthorized publication of news item containing copy of our illustration (Fig. 1, herein) and our generic name].

Etymology.—From the Latin “magnificus” meaning “noble, magnificent.”

Holotype.—USNM 157129, juvenile female on slides and in alcohol.

Type-locality.—Carrie Bow Cay, Belize, 16°48'N, 88°05'W, station AC-CBC-25, 15 May 1976, inner slope of outer ridge in outer fore-reef zone of Transect I, silty sand patch sheltered by coral, depth about 20 m, water temp. 28°C, small aquarium net bumping surface of sediment.

Paratype.—USNM 157756, 1 juvenile female on slides and in alcohol; from station AC-CBC-70, Carrie Bow Cay, Belize, 25 May 1976, spur-and-groove system of inner fore-reef zone of Transect I, small patch of silty sand in coral rubble between coral heads, depth about 9 m, surface of sediment scooped into plastic Whirl-pack bag.

Description of juvenile female (Figs. 1-5, Pls. 1-7).—Carapace elongate with prominent rostrum and caudal process (Figs. 1, 2a, b, d, e, Pls. 2, 6a, b).

Ornamentation (Fig. 1, Pls. 1-5): Each valve with several ribs: anterodorsal rib extending from rostrum to middle of valve near dorsal margin; upper lateral rib extending from rostrum to pointed process at postero-dorsal corner of valve; lower lateral rib extending from anteroventral

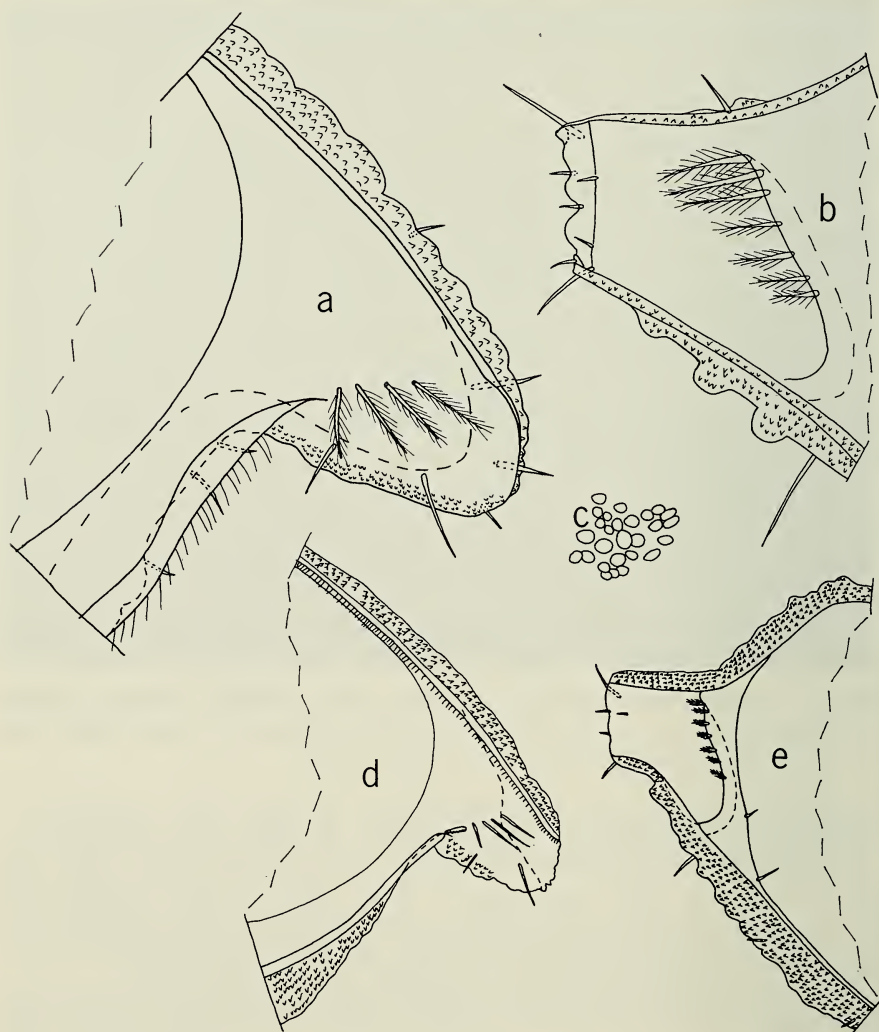


Fig. 2. *Dantya magnifica*, holotype, juv. ♀, USNM 157129: a, Rostrum, inside view; b, Caudal process, inside view; c, Left ends of central adductor muscles with left valve removed, anterior to left. Paratype, juv. ♀, USNM 157756: d, Rostrum, inside view (marginal spines not shown on 4 rostral bristles forming row); e, Caudal process, inside view.

corner of valve to lower edge of caudal process; ventral rib extending from middle of ventral margin of valve to point on lower lateral rib just anterior to caudal process; vertical rib connecting upper and lower ribs at point anterior to valve middle; oblique posterior rib extending from pointed

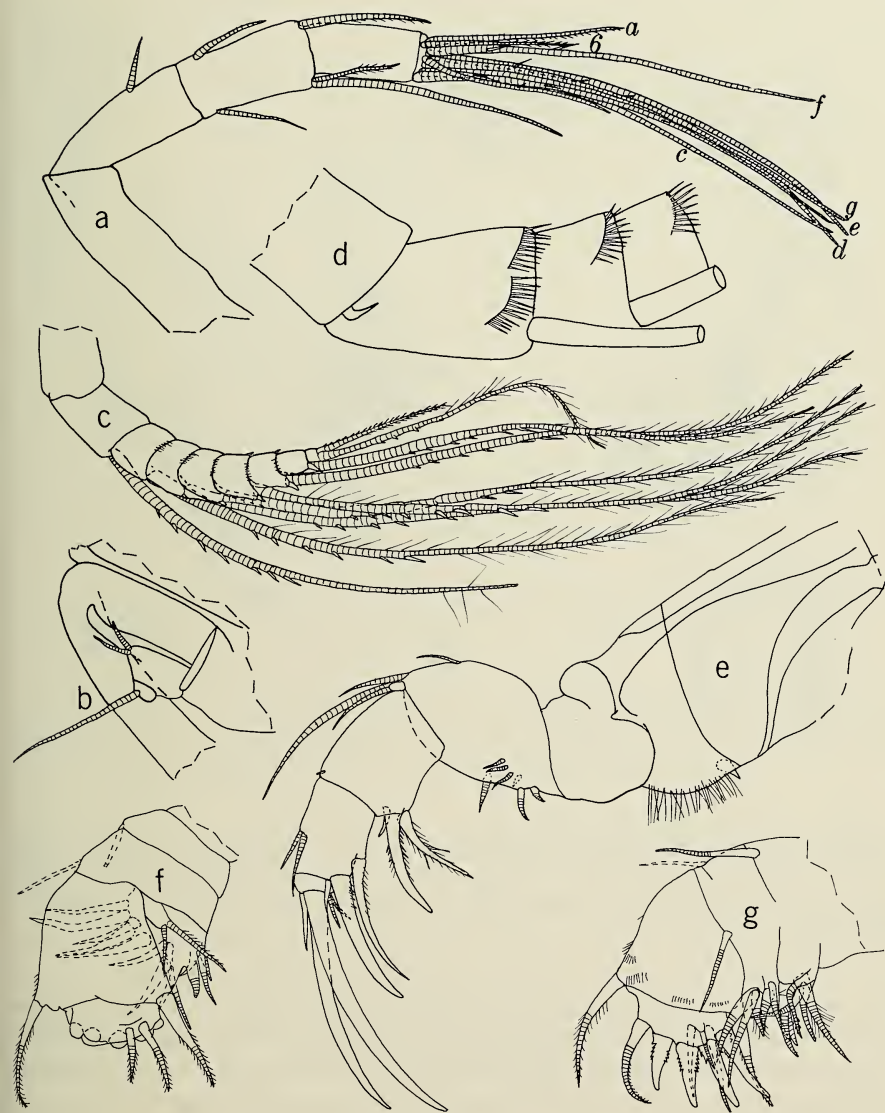


Fig. 3. *Dantya magnifica*, holotype, juv. ♀, USNM 157129: a, Left 1st antenna, medial view; b, Distal part of protopodite, proximal part of 1st joint of exopodite, and endopodite of right 2nd antenna, medial view; c, Exopodite of left 2nd antenna, lateral view; d, Distal part of 1st joint and joints 2-4 of exopodite of right 2nd antenna, medial view; e, Left mandible, lateral view; f, Left maxilla, lateral view; g, Right maxilla, medial view.



Fig. 4. *Dantya magnifica*, holotype, juv. ♀, USNM 157129; a, Left 5th limb, posterior view; b, Tip of right 5th limb, posterior view; c, distal end of 7th limb; d, Posterior of body showing Y-sclerite and right lamella of furca; e, Left lateral eye, medial eye and rod-shaped organ; f, Anterior of body showing spines along lower margin of upper lip.

process on posterodorsal corner of valve to upper edge of caudal process. Valves with numerous knoblike processes (Fig. 1, Pls. 1-5a); tip of each process with undulating structure (Pl. 3). Surface of valves minutely reticulate (Fig. 1, Pls. 1-3a, 4); area within reticulations with numerous pustules (Pl. 4b). Walls of reticulations as well as ribs with undulate margins (Pls. 1-3a, 4). Bristles scattered over valve surface and especially abundant along ventral margin (Pls. 1-4, 5b, c).

Infold: Rostral infold with 4 spinous bristles forming row along posterior part of rostrum, and 2 bare bristles near ventral margin of rostrum (Fig. 2a, d, Pls. 6a, b, f); infold of caudal process with 7 broad spinous bristles forming row near anterior part of process, and 2 small bare bristles near posterior

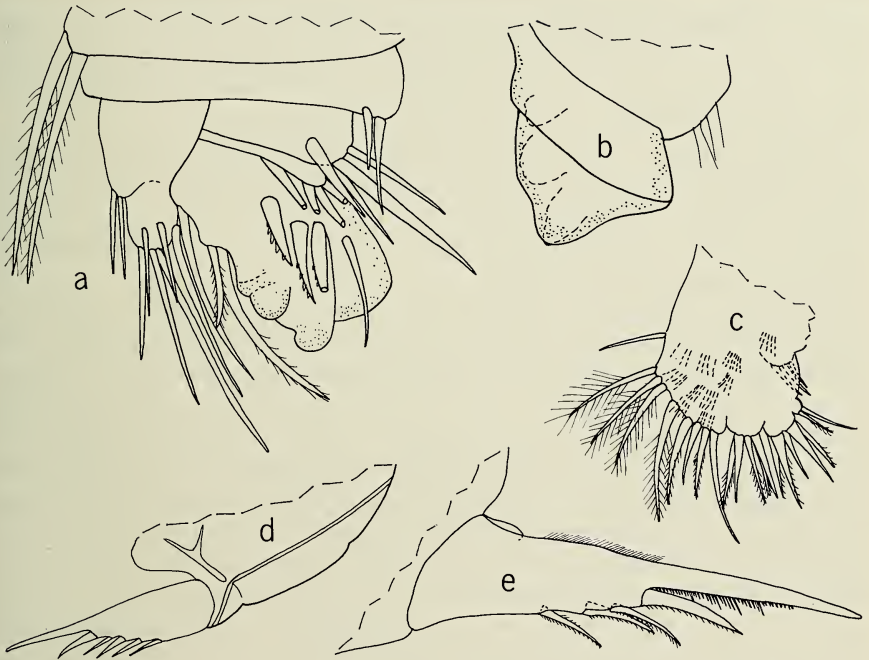


Fig. 5. *Dantya magnifica*, paratype, juv. ♀, USNM 157756: a, Tip of left 5th limb, posterior view; b, Tooth on 2nd exopodial joint of right 5th limb, anterior view; c, Right 6th limb, lateral view; d, Posterior of body showing left Y-sclerite and left lamella of furca (teeth and hairs on furca not shown); e, Right lamella of furca.

edge of process (Fig. 2b, e, Pls. 6a, 7b-d). Anteroventral infold with 3 small closely spaced bristles.

Selvage: Selvage along anteroventral and ventral margins with wide lamellar prolongation with fringed margin having long streamers (Pl. 6c-e); a similar lamellar prolongation present along anterodorsal valve margin; lamellar prolongation missing along anterior edge of rostrum, and selvage absent from ventral margin of rostrum; selvage appearing to be discontinuous in vicinity of rostrum with dorsal selvage terminating at anteroventral corner of rostrum, and ventral selvage terminating in vicinity of lowermost spinous bristle forming row on rostral infold (Fig. 2a, d, Pl. 6b).

Remarks concerning the rostrum: The rostrum (Pl. 6b, 7a) is unusual in not having a selvage along the ventral margin, and in that the 2 bristles near the ventral margin have proximal ridges (Pl. 7a) like the bristles that are usually found on the outer surface of the shell. From this it is tentatively concluded that the inner side of the rostrum is really part of

the outer surface of the shell rather than part of the infold. The spinous bristles forming a row near the posterior end of the rostrum are of a type often found on the infold of the rostrum in other groups. This suggests that the edge of the valve might lie at the base of the bristles. Further work is necessary to elucidate the morphology of the rostrum.

Central adductor muscle attachments: Consisting of about 27 ovoid attachments (Fig. 2c); these appear to be reflected as small fossae on outer surface of each valve (Pls. 1a, 2a).

Size: USNM 157129, length 1.05 mm, height 0.57 mm; USNM 157756, length 1.02 mm, height 0.56 mm.

First antenna (Fig. 3a): 1st joint bare. Second joint with 1 midbristle on dorsal margin. Third joint short, not separated from 4th by suture, with 2 bristles, 1 ventral, 1 dorsal. Fourth joint elongate, with 3 bristles, 2 ventral, 1 dorsal. Fifth joint elongate; sensory bristle with 3 short marginal filaments and 1 minute filament at tip. Sixth joint minute; medial bristle longer than 5th joint and with faint marginal spines. Seventh joint: a-bristle about twice length of 5th joint, longer than bristle of 6th joint, with faint spines along dorsal margin; b-bristle about same length as a-bristle, with 1 minute filament near middle; c-bristle same length as sensory bristle of 5th joint, with 2 or 3 short marginal filaments and 1 minute filament at tip. Eighth joint; d- and e-bristles bare, about same length as c-bristle; f-bristle slightly shorter than c-bristle, with 3 short marginal filaments and 1 minute filament at tip; g-bristle same length as c-bristle, with 3 short marginal filaments and 1 minute filament at tip.

Second antenna (Fig. 3b-d): Prodopodite bare. Endopodite 2-jointed: 1st joint with 2 short proximal anterior bristles; 2nd joint small with 1 fairly long bristle. Exopodite with 9 joints: 1st joint elongate with minute distal medial bristle bent at right-angle in middle; joints 2-7 with slender minute spines forming row near distal margin; joints 4-8 with basal spines increasing in size on distal joints; basal spine of 8th joint longer than small ninth joint; bristle of 2nd joint with proximal ventral spines and a few distal natatory hairs; bristles of joints 3-8 with proximal ventral spines, proximal dorsal hairs, and distal natatory hairs on both margins; 9th joint with 2 bristles (1 long bristle with proximal ventral spines and distal natatory hairs, 1 short bristle with short, slender, marginal spines).

Mandible (Fig. 3e): Coxale: endite large for family, spinose, with pointed tip; ventral margin hirsute. Basale: dorsal margin with 1 short midbristle and 2 terminal bristles (1 long, 1 short); medial side with 2 small bristles near ventral margin; lateral side with 3 bristles near ventral margin; ventral margin with 2 small bristles. Exopodite minute, with 1 terminal bristle reaching past middle of dorsal margin of 1st endopodial joint. First endopodial joint: dorsal margin with 1 minute terminal spine; ventral margin with 1 small bristle and 2 long spinous claws. Second endopodial

joint: dorsal margin with 2 subterminal bristles; ventral margin with 2 stout spinous claws; lateral side with 1 small bristle on terminal margin near base of distal ventral claw. Third endopodial joint with 2 long claws, 1 small dorsal claw, and 2 ventral bristles.

Maxilla (Fig. 3f, g): Three endites present: endite I with about 6 bristles; endite II with about 3 bristles; endite III with about 4 bristles. Coxale with 1 bare dorsal bristle. Basale with 1 slender medial bristle on distal margin and 1 slender, bare, terminal, dorsal bristle (bristle missing on USNM 157129). Exopodite consisting of small lobe with 2 bristles. Endopodite: 1st joint with distal medial spines and a spinous alpha- and beta-bristle (alpha-bristle almost one-half diameter of beta-bristle); end joint with 1 small spinous medial a-bristle, 2 small spinous lateral c-bristles, and 5 short stout terminal bristles (outer of these spinous, others pectinate).

Fifth limb (Figs. 4a, b, 5a, b): Three endites present: endite I with 2 or 3 short spinous bristles; endites II and III each with 4 spinous bristles. Epipodial appendage with 37 spinous bristles. Exopodite: 1st joint with main tooth consisting of 3 broad teeth; 2nd joint with large broadly triangular tooth and 7 anterior bristles (4 near inner edge, 3 near outer edge); 3rd joint with 2 short bristles on outer lobe and possibly 1 bristle on inner lobe; 4th joint with 5 or 6 bristles.

Sixth limb (Fig. 5c): Four endites present; bristles of endites either bare or with short marginal spines; endite I with 3 short bristles; endite II minute, with 2 bristles; endites III and IV about same size, slightly larger than endite I, each endite with 5 bristles; anterior half of margin of end joint with 4 bristles either bare or with short marginal spines, and posterior half of margin of end joint with 4 bristles with long marginal hairs; a single annulated bristle on posterior margin interpreted herein as being epipodial bristle; limb hirsute.

Seventh limb (Fig. 4c): Each limb with 4 tapering proximal bristles, 2 on each side, and 4 tapering terminal bristles, 2 on each side; each bristle with 2-5 bells, but no marginal spines. Terminus consisting of comb with about 5 teeth opposite small peg.

Furca (Figs. 4d, 5d, e): Each lamella with 5 or 6 claws; claw 4 stouter than claw 3; each claw with teeth along posterior margin; anterior of lamella proximal to claw hirsute; teeth along posterior margin of claw 1 consisting of 4 sets followed by smaller teeth (each set consisting of 8 or 9 teeth increasing in length distally).

Eyes (Fig. 4e): Lateral eyes small, unpigmented, each with 4 or 5 ommatidia. Medial eye with light amber pigment, slightly larger than lateral eye.

Rod-shaped organ (Fig. 4e): Elongate with about 8 proximal sutures; tip rounded.

Table 1. Plesiomorphic and apomorphic character states in the Philomedidae, Sarsiellidae, and Rutidermatidae.

	Plesiomorphic	Apomorphic
1. Prominent rostrum	present	absent
2. Bristles on rostral infold	present	absent
3. Large claw on 2nd endopodial joint of mandible	absent	present
4. 1st endopodial joint of maxilla	long	short
5. Number of endites on 5th limb	3	1
6. 1st exopodial joint of 5th limb	with teeth	without teeth
7. 2nd exopodial joint of 5th limb	without large tooth	with large tooth
8. Relationship of furcal claw 1 to lamella	separated by suture	fused
9. Glands in upper lip	present	absent

Upper lip (Fig. 4f): Consisting of simple lobe divided by shallow anterior midgroove; each half of lobe with rows of slender hairs or spines. No glandular opening observed when viewed with light microscope at $\times 200$ magnification.

Y-Sclerite (Figs. 4d, 5d): Branching distally.

Discussion.—*Dantya magnifica* possesses some characters previously reported only on members of the Sarsiellidae and some characters previously reported only on members of the Rutidermatidae and Philomedidae. In order to ascertain the relationship between the species and the 3 families, we selected 9 morphological characters present in some but not all of the 3 families. The characters selected are those with character states whose polarity could be estimated with some confidence. The estimated polarity of the character states is shown in Table 1.

Comparing the character states of *Dantya magnifica* with those listed in Table 1, we find that the species shares only 1 apomorphic character state (character 7 in Table 1) with members of the Philomedidae, 4 (characters 3, 4, 7, 9 in Table 1) with members of the Rutidermatidae, and 4 (characters 3, 4, 8, 9 in Table 1) with members of the Sarsiellidae.

Clearly, *D. magnifica* is more closely related to the Sarsiellidae and the Rutidermatidae than to the Philomedidae. Because only in the Sarsiellidae, and on all its members, the 1st claw of the furca is fused to the lamella, we are inclined to give this apomorphic character state more weight than some of the others, and therefore, have concluded that the species is more closely related to the Sarsiellidae than to the Rutidermatidae.

D. magnifica has at least 2 claws on the 1st and 2nd endopodial joints of the mandible. This character state is clearly apomorphic, is not shared by other species of Myodocopina, and warrants proposal of the new subfamily Dantyainae, within the Sarsiellidae.

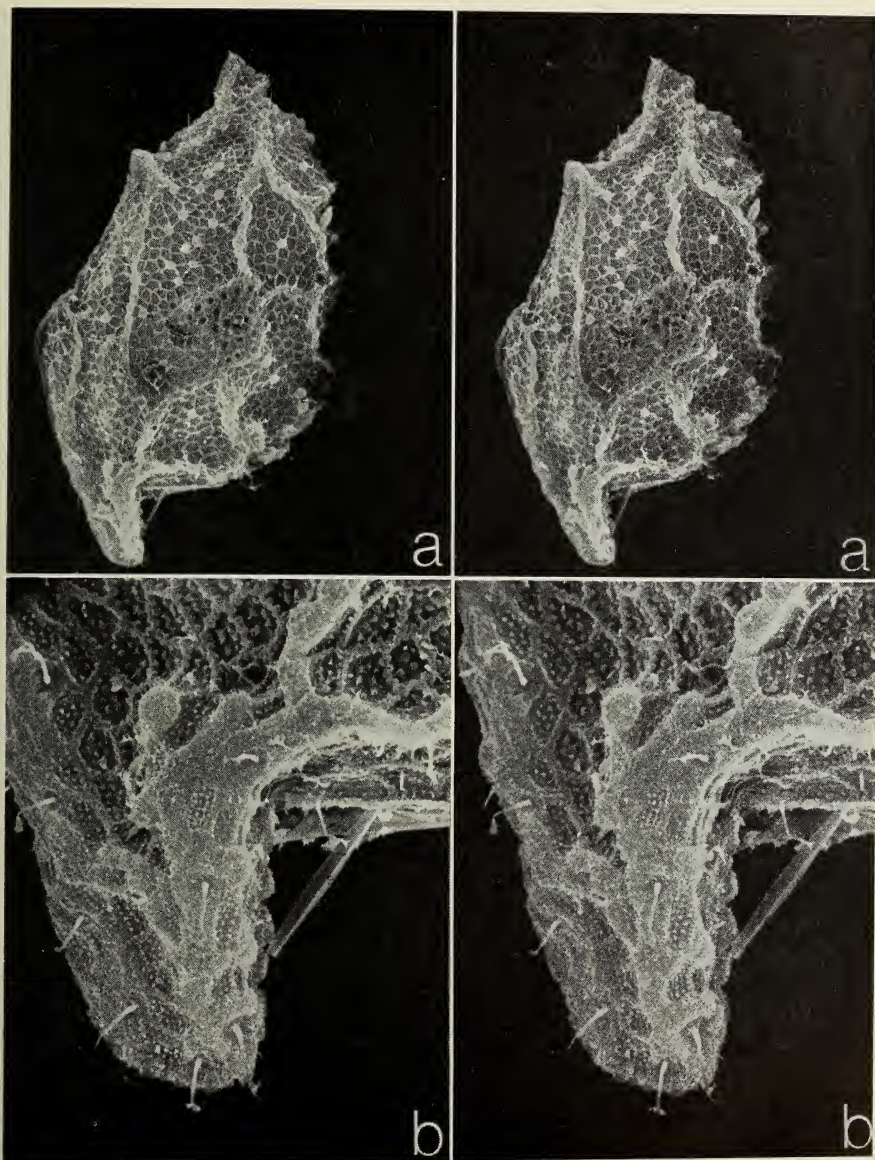


Plate 1. *Dantya magnifica*, holotype: a, Stereo-pair of left valve (posterior half of dorsal edge folded inwardly, for undistorted outline see Fig. 1), $\times 100$; b, Stereo-pair of rostrum, note diatom spanning incisur, $\times 400$. Magnifications given are those at which the micrographs were made on SEM; these have been reduced 26% for publication.

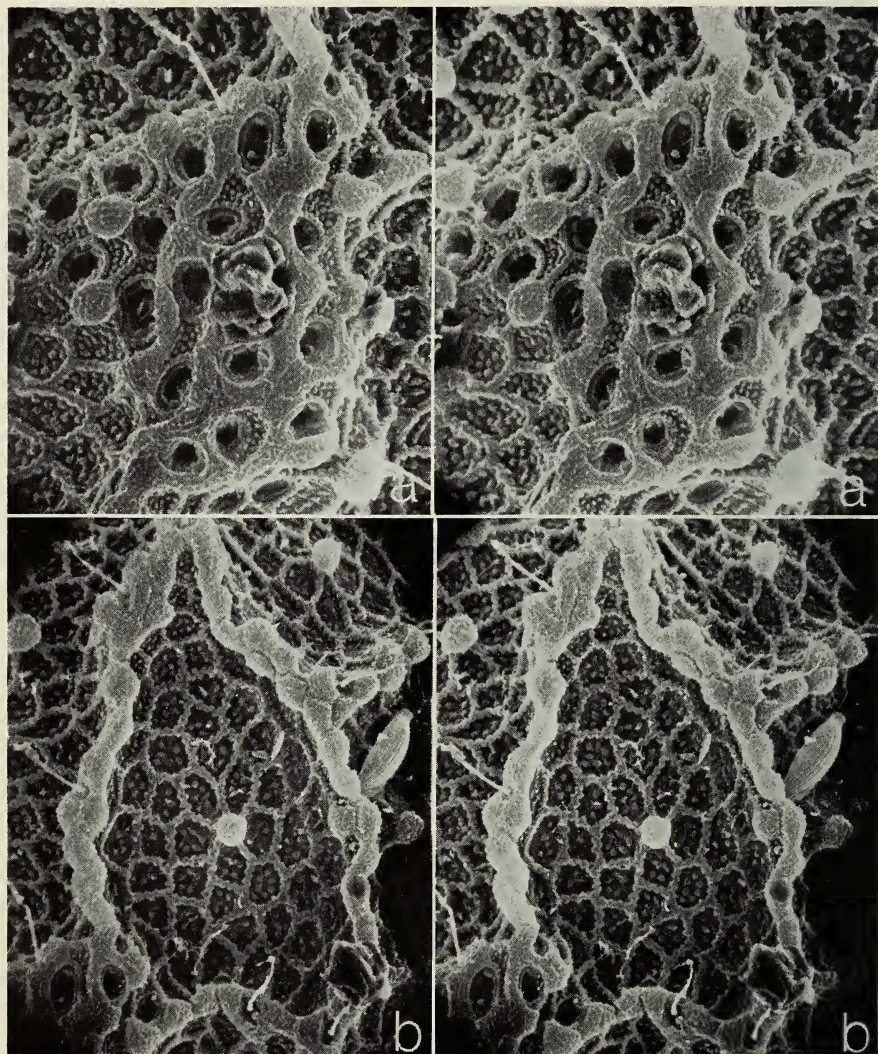


Plate 2. *Dantya magnifica*, holotype: a, Stereo-pair of valve in vicinity of central adductor muscle attachments, anterior towards bottom of micrograph, $\times 500$; b, Stereo-pair of valve surface near ventral margin of valve posterior to middle, $\times 380$. See Plate 1a for locations on valve of micrographs in Plate 2. Magnifications given are those at which the micrographs were made on SEM; these have been reduced 33% for publication.

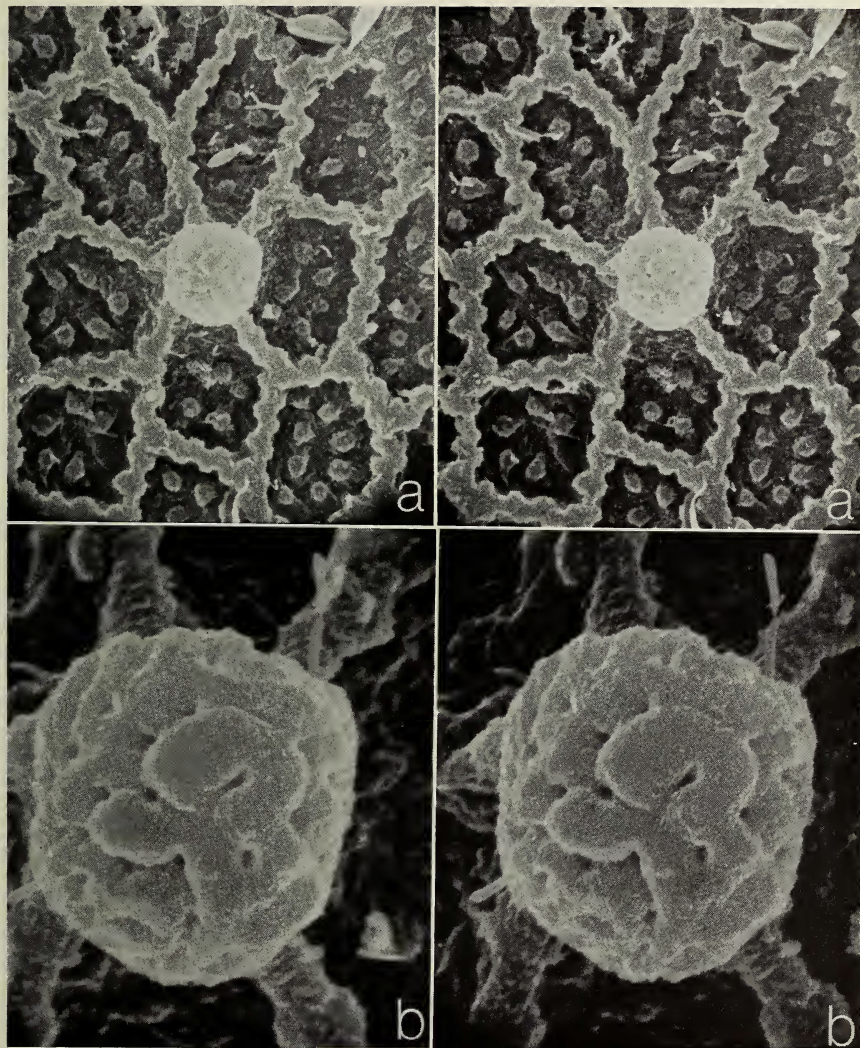


Plate 3. *Dantya magnifica*, holotype: a, Stereo-pair of surface reticulations and processes at middle of micrograph shown in Plate 2b, $\times 1,200$; b, Stereo-pair of knob-like process in middle of a, $\times 4,000$. Magnifications given are those at which the micrographs were made on SEM; these have been reduced 33% for publication.

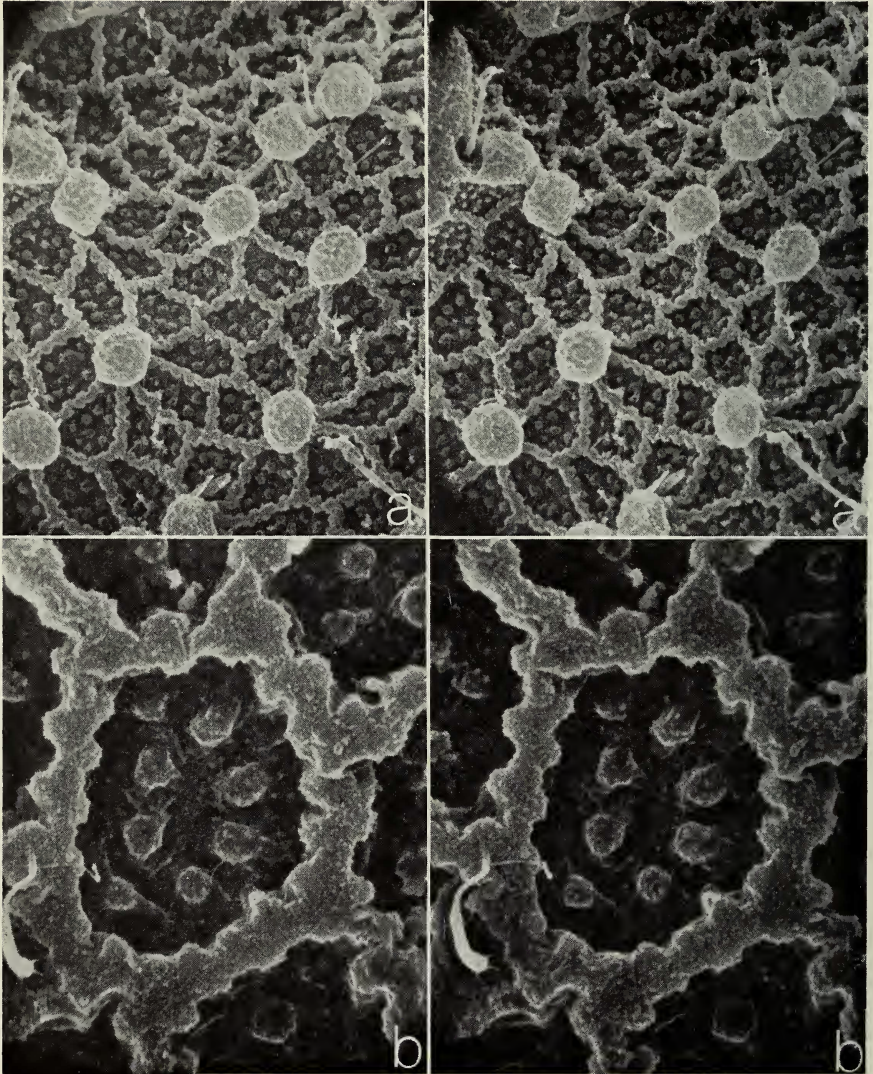


Plate 4. *Dantya magnifica*, holotype: a, Stereo-pair of reticulations and processes on valve just posterior and dorsal to central adductor muscle attachments, for location see Plate 1a, $\times 700$; b, Stereo-pair of bristle, reticulations and pustules $\times 2,600$. Magnifications given are those at which the micrographs were made on SEM; these have been reduced 30% for publication.

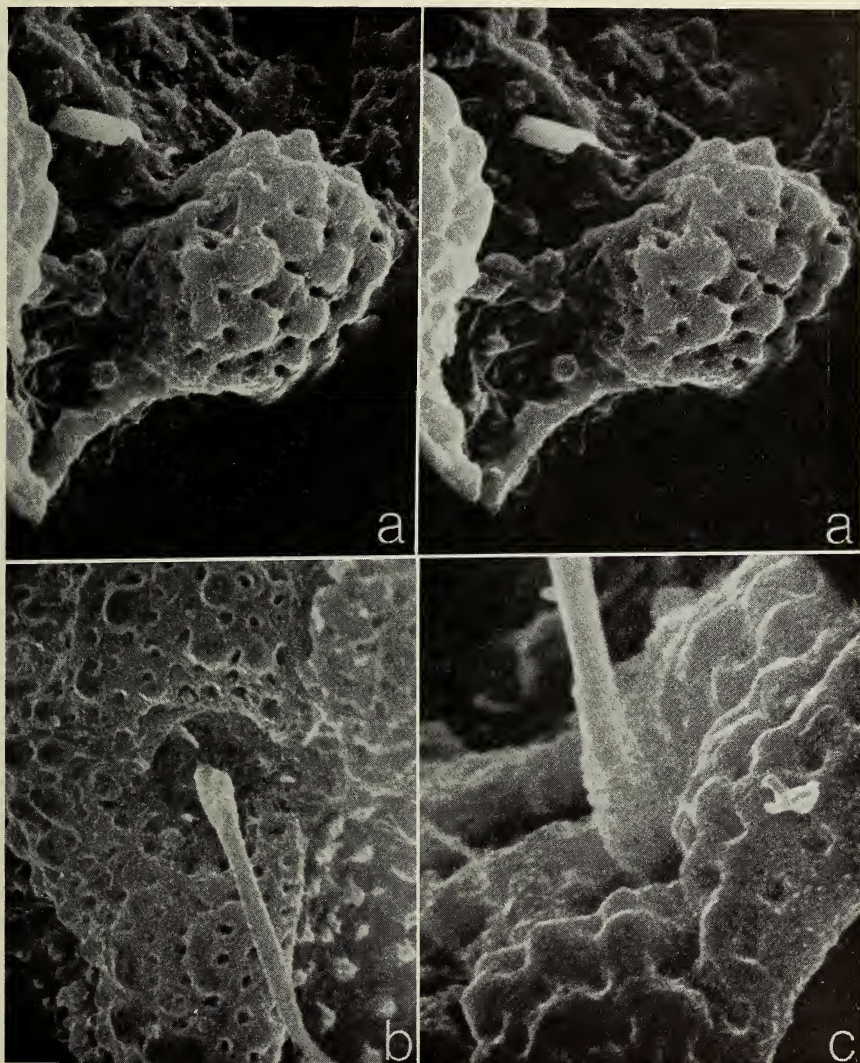


Plate 5. *Dantya magnifica*, holotype: a, Stereo-pair of knobby process, $\times 3,000$; b, Bristle on rostrum, from Plate 1b, $\times 2,600$; c, Base of bristle near central adductor muscle attachments, from Plate 2a, $\times 5,000$. Magnifications given are those at which the micrographs were made on SEM; these have been reduced 33% for publication.

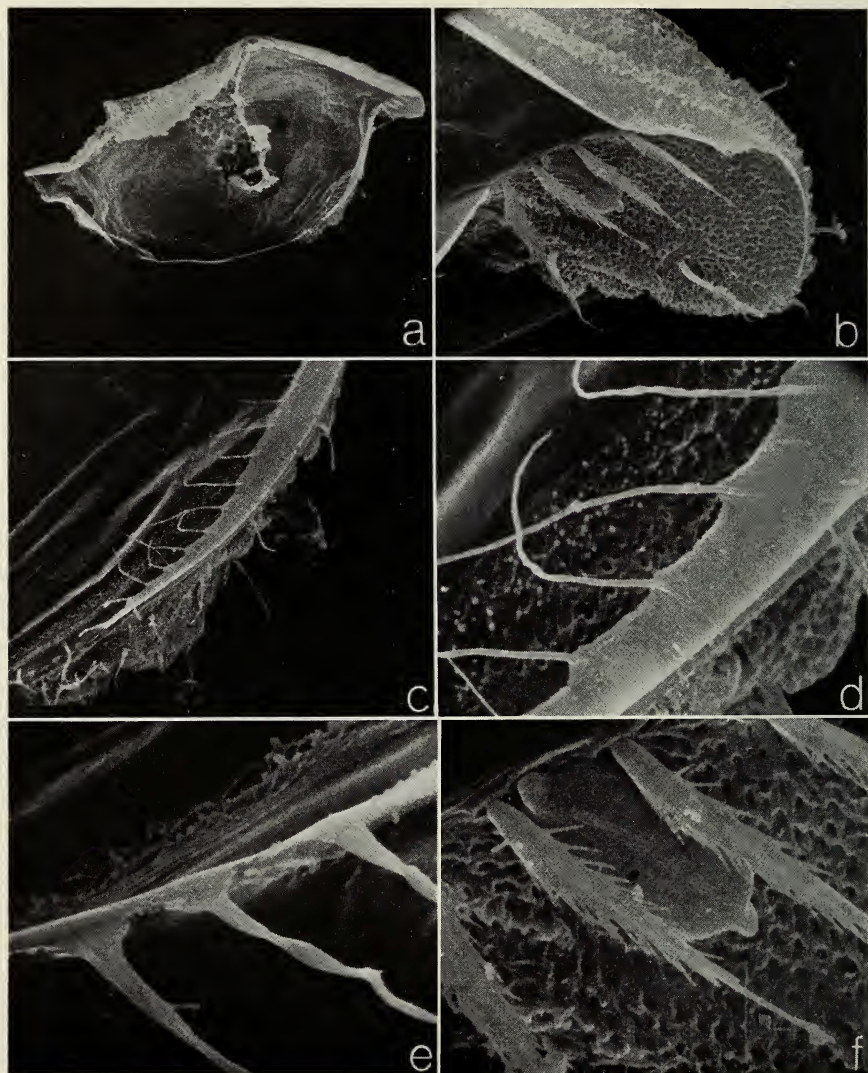


Plate 6. *Dantya magnifica*, holotype: a, Inside view of left valve, $\times 100$; b, Inside view of rostrum, $\times 750$; c, Anteroventral margin showing infold and lamellar prolongation of selvage, from a, $\times 500$; d, Detail of lamellar prolongation of selvage shown in c, $\times 2,000$; e, Ventral margin of valve anterior to middle showing infold and lamellar prolongation of selvage, from a, $\times 3,600$; f, Detail from b showing bristles and diatom, $\times 2,200$. Magnifications given are those at which micrographs were made on SEM; these have been reduced 43% for publication.

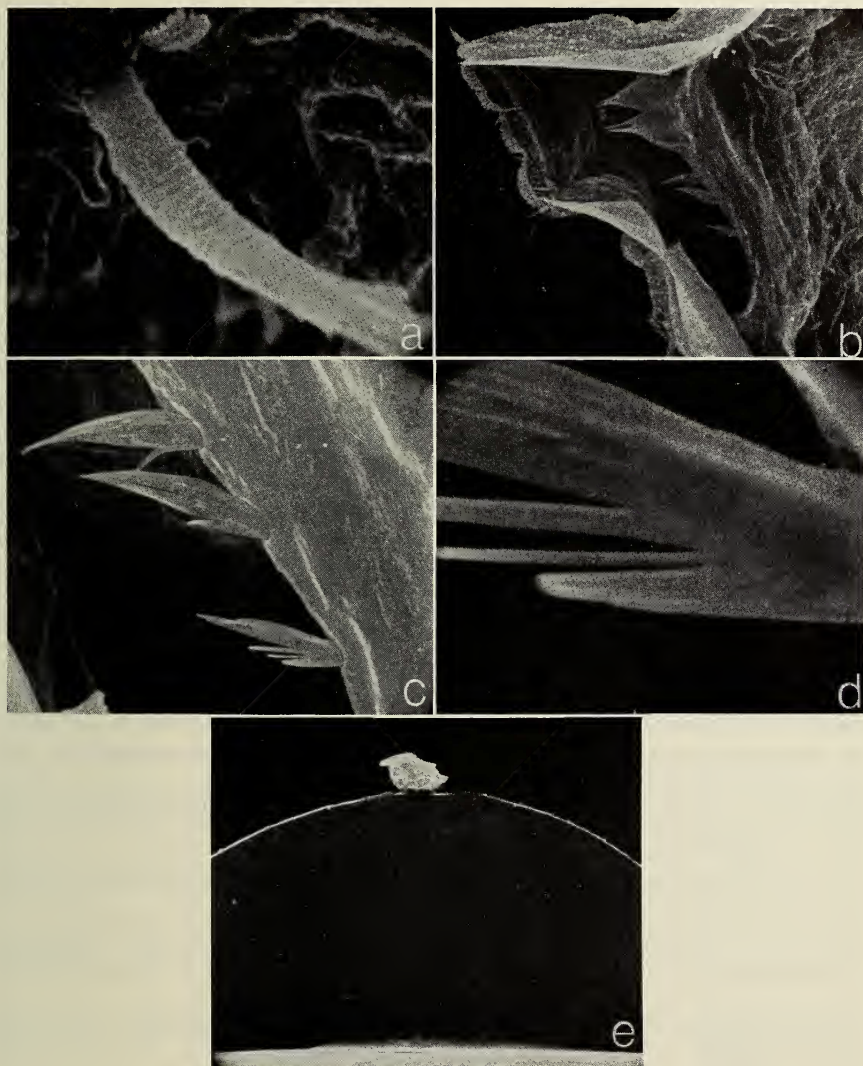


Plate 7. *Dantya magnifica*, holotype: a, Base of bristle on inside of rostrum near anterior edge, from Plate 6b, $\times 7,500$; b, Inside view of caudal process, from Plate 6a, $\times 500$; c, Detail from c showing bristles on list of caudal process, $\times 2,000$; d, Detail of lower bristle in d, $\times 12,500$; e, Outside view of left valve mounted on edge of cover slip, $\times 18$. Magnifications given are those at which micrographs were made on SEM; these have been reduced 44% for publication.

Acknowledgments

Several people assisted in the preparation of this manuscript. The shaded rendering of the carapace was made by Mrs. Carolyn Bartlett Gast. Initial camera lucida drawings of most appendages were made by Mrs. Kathryn Brown, who also inked the final drawings. The assistance of Mr. Walter R. Brown and Miss Mary J. Mann, who operated the scanning-electron microscope, is acknowledged. Freeze-drying of the specimen for photography was done in the laboratory of Mr. Rolland O. Hower. We thank our colleagues for discussing nomenclatorial problems concerning the synonymy. This paper is contribution number 41 of the Smithsonian Institution Investigations of Marine Shallow-Water Ecosystems Project.

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